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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,568	11/01/2001	Craig Nemecek	CYPR-CD01214M	5636

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EXAMINER	
PROCTOR, JASON SCOTT	

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/001,568	NEMECEK ET AL.	
	Examiner	Art Unit	
	Jason Proctor	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-20 have been presented for examination. Claims 1-20 have been rejected.

Priority

1. This Application contains a claim for the benefit of priority to U.S. Provisional Application No. 60/243,708 filed 26 October 2000. The provisional application has been reviewed and priority is denied, because the provisional application does not appear to enable the claimed invention as required under 35 U.S.C. Section 112, first paragraph. See 35 U.S.C. § 119(e)(1).

For example, the provisional application contains a set of 'powerpoint-style' drawings and datasheets describing desired features for a microcontroller or a 'system-on-chip,' but this material does not appear to contain either the text description or the drawings found in the Application. In particular, no part of the provisional application appears to disclose the method steps shown in the Application at Fig. 7.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 6, 9, and 20 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter

2. Claims 6, 9, and 20 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These claims make reference to a "category 5 cable", described in the disclosure of the application at page 12, line 28 – page 13, line 1:

> This interface permits use of a standard five wire Category Five patch cable to connect the microcontroller 232 and base station 218 in one embodiment, but of course, this is not to be considered limiting.

A category five (or CAT-5) cable is well known to consist of four twisted pairs of wires, or eight wires. A "standard five wire Category Five patch cable" is unknown in the art. Where the claims make reference to a "category 5 cable", the disclosure confuses whether this refers to some type of "five wire" cable or a standard category five cable.

3. Claims 7, 9, 12, 13, and 15-19 are rejected under 35 U.S.C. § 112, first paragraph, as based on a disclosure which is not enabling.

4. Regarding claim 7, The particular interface connected to the programming socket, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Dependent claims 8 and 10 attempt to recite the interface taught by the disclosure. Contrast the limitations of claim 7 to those of claim 1, wherein the particular interface connected to the programming socket is recited in an

independent claim. The disclosure is not enabling for an arbitrary interface. Please see the rejection of claims 8 and 10-11 under 35 U.S.C. § 112, second paragraph, below.

5. Similarly, claim 13 does not recite method steps that the disclosure enables. Claim 14 attempts to include these steps. The disclosure is not enabling for an arbitrary method of programming a device, but only that method using the disclosed interface.

Claims rejected but not specifically mentioned stand rejected by virtue of their dependency.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-6, 8, and 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 1, 8, and 10 recite limitations related to a reset line that is connected to the emulation microcontroller, "but is not connected to the socket". The phrase "but is not connected to the socket" is a negative limitation that does not definitely set forth the boundaries of patent protection sought. Please see MPEP 2173.05(i). Although it may be presumed from the disclosure that Applicants' intentions are that the device in the socket never receives a signal related to the reset line, this notion differs from what is defined by the phrase. Numerous interpretations exist by which a reset line "is not connected to the socket" but the device in the socket receives the signal on the reset line nonetheless. Intervening interfaces, relays, switches, level shifters, or other

electronic constructs could be placed between the reset line and the socket, creating a reset line which "is not connected to the socket", however the signal on the reset line could be transmitted to the socket. If this is the correct interpretation of the claim, the Examiner respectfully requests clarification and an indication where support for such an interpretation is found in the disclosure.

Regarding this limitation, the Examiner respectfully suggests considering whether the negatively recited limitation is necessary, especially in light of language such as claim 1, lines 10-13, which appear to positively recite the functionality achieved by using a reset line that "is not connected to the socket". As these lines indicate the purpose for the arrangement of the reset line, the Examiner does not grant patentable weight to the limitation of a reset line connected to the emulation microcontroller, but not connected to the socket. If Applicant intends that this limitation be given patentable weight, clarification is respectfully requested.

Claims rejected but not specifically mentioned stand rejected by virtue of their dependence.

8. Claims 8 and 10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. These claims recite little more than the negative limitation above regarding a reset line that is "not connected to the programming socket". It is entirely unclear what patent protection is sought by these claims as noted above, but further in that these

claims do not recite other meaningful limitations that enable the Examiner to perform an analysis of the prior art. For the purposes of examination, the Examiner interprets these claims as reciting an interface that enables the pod assembly of claim 7 to function. Therefore these claims are interpreted as integral to claim 7.

10. Claim 12 recites the limitation "device under test" in line 1. There is insufficient antecedent basis for this limitation in the claim. Presumably, claim 12 should depend from one of claims 7, 10, or 11, however it is impossible to determine which without speculation. In the interests of granting the claims their broadest reasonable interpretations, the Examiner presumes claims 12 depends from claim 7.

11. Claim 16 recites the limitation "key code" in line 1. There is insufficient antecedent basis for this limitation in the claim. The Examiner presumes that claim 16 should depend from claim 15.

Claims rejected but not specifically mentioned stand rejected by virtue of their dependence.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

12. Claims 1-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 5,663,900 to Bhandari et al. (Bhandari) in view of US Patent No. 6,161,199 to Szeto et al. (Szeto).

Regarding claim 1, Bhandari teaches:

An in-circuit emulation system (Figs. 1, 2A, 2B; column 2, lines 31-39, especially "*to provide a simulation environment with computer models to verify the functions of a prototype integrated circuit[s] on a target system*"),

a pod carrying an emulation microcontroller (Fig. 1, references 42, 39; column 2, lines 43-45, "The pod 42 has a male plug-in socket adapter 39 where the adapter 39 connects to the female socket 48 on the target board 46"; column 3, lines 56-60, *external system 46 may be an emulator*),

a base station having a virtual microcontroller that operates in lock-step synchronization with the emulation microcontroller during emulation operations (Fig. 1, reference 10; column 3, line 61 – column 4, line 17, *external system 46 may be implemented on a processor synchronized with primary simulator 16*), and

an interface connecting the pod to the base station (Fig. 1, reference 38) having a clock signal line, a pair of data signal lines, a reset line, and a power line (column 4, lines 3-9, *interface tool enables simulator to interact with various external systems*; and column 4, lines 10-17, *second simulation tool may be synchronized with primary simulator*, clearly implying a clock

signal; column 5, lines 7-15, *interface circuit provides control signals according to instructions and operations from simulator 16 to force, reset, set-up, and initialize pre-determined logic states, etc.*; and column 4, lines 52-62).

Bhandari does not teach a combined microcontroller programmer.

Szeto teaches a non-intrusive in-system debugging apparatus and method that uses an in-system programming mode to program a device such as a microcontroller (column 3, lines 22-33; column 3, lines 42-58). Szeto specifically teaches programming a microcontroller (Figs. 6-7; column 4, lines 1-28).

As Bhandari is a design and verification system, therefore concerned with the ultimate production of the device under design, the advantages of including an in-system programming socket as taught by Szeto would be have been obvious to a person of ordinary skill in the art at the time of Applicants' invention. This combination would join the advantages of the prior art and facilitate both the design and creation of a prototype device. It would have been obvious to implement the programming socket on the pod because the pod is already the existing interface to the emulation microcontroller; any other arrangement would require addition of a redundant interface. In forming this combination, it would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to take necessary steps to prevent the emulation microcontroller from interfering with the programming socket. Failure to do so would yield an inoperable or unacceptable device.

In general, the combination of an in-circuit emulator as known in the art with an in-system programmer as known in the art is contemplated by MPEP 2144.04 (V) (B) *Making Integral*, therefore the Examiner respectfully suggests positively recited claim language that explicitly refers to Applicants' particular method of achieving the combination, such as Figure 10 and page 27, line 5 – page 28, line 3.

Regarding claim 2, it would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to send programming instructions (the data elements pertaining to the task of programming) to the microcontroller being programmed using the existing data lines taught by Bhandari. It would have been obvious to not use the existing clock line because doing so would drive the emulation microcontroller, a clearly undesirable result. Official notice is communications between electronic devices using a data signal and a clock signal is well known in the art.

Regarding claim 3, it would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to use data lines, as taught by Bhandari, for communicating data.

Regarding claim 4, the combination formed in the rejection of claim 1 includes an interface for communicating with the emulation microcontroller (Fig. 1, connection between references 5, 38, 42, and 39) that is also the interface for programming the microcontroller during programming operations (wherein the programming socket is

located on the pod, utilizing the existing connection in Fig. 1, between references 5, 38, and 42).

Regarding claim 5, the combination formed in the rejection of claim 1 would have required connecting the data lines to the terminals of the socket corresponding to programming inputs for the microcontroller residing in the socket, else the device would be inoperable.

Regarding claim 6, official notice is taken that a category five cable is well known in the art. It would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to use a well-known type of cable when connecting the components of the system. Where four twisted pairs of wires are suitable, it would be obvious to use a category five cable, as this type of cable is ubiquitous and economical.

Regarding claims 7, 8, and 10, Bhandari teaches:

An in-circuit emulation system (Figs. 1, 2A, 2B; column 2, lines 31-39, especially "*to provide a simulation environment with computer models to verify the functions of a prototype integrated circuit[s] on a target system*"),

a device under test (column 3, lines 6-20, *simulator verification or testing facility for simulating or emulating a functional specification of a particular prototype definition*),

an interface connecting the pod to a base station (Fig. 1, reference 38) having a clock signal line, a pair of data signal lines, a reset line, and a power line (column 4, lines 3-9, *interface tool enables simulator to interact with various external systems*; and column 4, lines 10-17, *second simulation tool may be synchronized with primary simulator*, clearly implying a clock signal; column 5, lines 7-15, *interface circuit provides control signals according to instructions and operations from simulator 16 to force, reset, set-up, and initialize pre-determined logic states, etc.*; and column 4, lines 52-62).

Bhandari does not teach a combined microcontroller programmer.

Szeto teaches a non-intrusive in-system debugging apparatus and method that uses an in-system programming mode to program a device such as a microcontroller (column 3, lines 22-33; column 3, lines 42-58). Szeto specifically teaches programming a microcontroller (Figs. 6-7; column 4, lines 1-28).

As Bhandari is a design and verification system, therefore concerned with the ultimate production of the device under design, the advantages of including an in-system programming socket as taught by Szeto would be have been obvious to a person of ordinary skill in the art at the time of Applicants' invention. This combination would join the advantages of the prior art and facilitate the design, testing, and creation of a prototype device. It would have been obvious to implement the programming socket on the pod because the pod is already the existing interface to the emulation microcontroller; any other arrangement would require addition of a redundant interface.

In forming this combination, it would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to take necessary steps to prevent the emulation microcontroller from interfering with the programming socket. Failure to do so would yield an inoperable or unacceptable device.

The Examiner again refers to MPEP 2144.04 (V) (B) *Making Integral.*

Regarding claim 9, official notice is taken that a category five cable is well known in the art. It would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to use a well-known type of cable when connecting the components of the system. Where four twisted pairs of wires are suitable, it would be obvious to use a category five cable, as this type of cable is ubiquitous and economical.

Regarding claim 12, Bhandari teaches several types of devices that may be designed using the disclosed system (column 2, line 64 – column 3, line 5). It would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention that Bhandari's teachings are clearly applicable to designing a microcontroller.

Claims 13 and 14 recite the method performed by the combination formed in the rejection of claim 1 and are therefore rejected for the same reasons given for claim 1.

Regarding claims 15-16, official notice is taken that write protection using a key code is well known in the art of microcontroller programming. Therefore it would have been obvious to a person of ordinary skill in the art to accommodate transmitting a write enable key to a microcontroller in order to program it.

Regarding claim 17, the combination formed in the rejection of claim 13 includes an interface for communicating with the emulation microcontroller (Fig. 1, connection between references 5, 38, 42, and 39) that is also the interface for programming the microcontroller during programming operations (wherein the programming socket is located on the pod, utilizing the existing connection in Fig. 1, between references 5, 38, and 42).

Regarding claim 18, it would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to send programming code (the data elements pertaining to the task of programming) using the existing data lines taught by Bhandari. It would have been obvious to not use the existing clock line because doing so would drive the emulation microcontroller, a clearly undesirable result. Official notice is communications between electronic devices using a data signal and a clock signal is well known in the art.

Regarding claim 19, the combination formed in the rejection of claim 13 includes an interface for communicating with the emulation microcontroller (Fig. 1, connection

between references 5, 38, 42, and 39) that is also the interface for programming the microcontroller during programming operations (wherein the programming socket is located on the pod, utilizing the existing connection in Fig. 1, between references 5, 38, and 42).

Regarding claim 20, official notice is taken that a category five cable is well known in the art. It would have been obvious to a person of ordinary skill in the art at the time of Applicants' invention to use a well-known type of cable when connecting the components of the system. Where four twisted pairs of wires are suitable, it would be obvious to use a category five cable, as this type of cable is ubiquitous and economical.

Conclusion

Art considered pertinent by the examiner but not applied has been cited on form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Proctor whose telephone number is (571) 272-3713. The examiner can normally be reached on 8:30 am-4:30 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J Teska can be reached on (571) 272-3716. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3713.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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